P19 High Performance Pressure Sensor

Features

- With constant current excitation
- Imported highly reliable NOVA pressure die
- Wide temperature compensation
- Ceramic compensation board
- φ19mm standard OEM
- All 316L material
- High performance, all solid, high reliability
- 18 months warranty period

Applications and industries

- Process control systems
- Pressure calibration instruments
- Refrigeration equipment and HVAC control
- Hydraulic systems and valves
- Level measurement
- Biomedical instruments
- Ships and navigation
- Aircraft and avionics systems

Notes:

1 Do not touch the diaphragm with hard objects, which may cause damage to the diaphragm.

2 Please read the Instruction Manual of the product carefully before installation and check the relevant information of the product.

3 Strictly follow the wiring method for wiring, otherwise it may cause product damage or other potential faults.

4 Misuse of the product may cause danger or personal injury.

Product overview

P19 High Performance Pressure Sensor is the core component for producing pressure sensors and pressure transmitters; as a kind of pressure sensitive elements with high performance, it can be conveniently processed through amplifying, and assembled into the transmitter with the standard signal output.

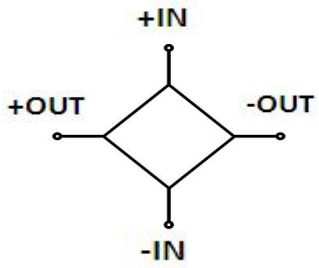
P19 High Performance Pressure Sensor packages highly reliable pressure die into 316L stainless steel housing; the external pressure is transmitted to the sensitive die through the stainless steel diaphragm and internally sealed silicon oil; the pressure die does not directly contact with the measured medium, so as to form all solid structure of pressure measurement, so this product can be applied to a variety of occasions, including harsh corrosive medium environment.

P19 pressure sensor adopts O-ring for pressure sealing, easy to install.

The company can also undertake special customization according to user needs, such as pressure sensors with fully welded structure, wide temperature compensation, high reliability, strong impact resistance, and vibration resistance, which are more suitable for replacing imported products.

Equivalent circuit

4 wires



Notes:

1 Do not misuse documentation.

2 The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.

3 Complete installation, operation, and maintenance information is provided in the instructions of the product.

4 Misuse of the product may cause danger or personal injury.

Electrical performance parameters

Pressure range	0～7kPa…70MPa
Pressure reference	Gauge pressure Absolute pressure or Sealed gauge pressure
Excitation	1.5mA recommended for constant current
Input impedance	3kΩ～8kΩ
Electrical connection	Silica gel flexible wire
Compensated temp.	Constant current: 0℃～70℃ (≤35kPa), -10℃～80℃ (other ranges)
Operating temp.	-40℃～125℃
Storage temp.	-40℃～125℃
Insulation resistance	≥200MΩ/250VDC
Response time	≤1Ms (up to 90%FS)
Measurement medium	All the liquids and gases compatible with 316L
Mechanical vibration	20g (20～5000HZ)
Shock	100g (10ms)
Service life	$1\times10_6$(cycles)

Structural performance parameters

Diaphragm material	316L
Housing material	316L
Perfusion liquid	Silicon oil
Sealing ring	Fluorine rubber

Basic parameters

Item	Condition	Min	Typical	Max	Unit	Note
Nonlinearity		-0.2	±0.15	0.2	%FS	Note (1)
Hysteresis		-0.05	±0.03	0.05	%FS	
Repeatability		-0.05	±0.03	0.05	%FS	
Zero output		-2	±1	2	mV	
Full span output	1.5mA	50			mV	
Zero temp. coefficient	≤35kPa Others	-1.5 -1	±1.2 ±0.75	1.5 1	%FS	Note (2)
Sensitivity temp. coefficient		-1	±0.75	1	%FS	Note (2)
Thermal hysteresis		-0.075	±0.05	0.075	%FS	Note (3)
Long-term stability		-0.2	±0.1	0.2	%FS/year	

Note:

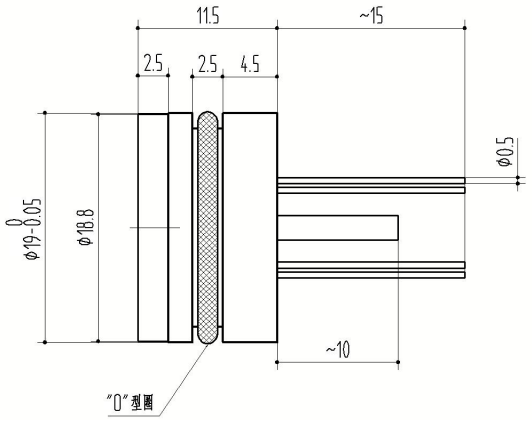
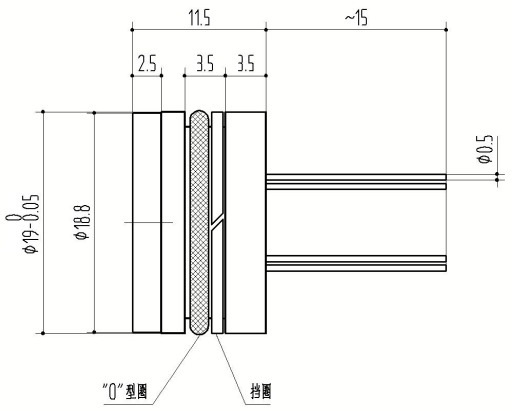
(1) Calculate according to BFSL least square method.

(2) Range≤35kPa, compensation temperature range 0 ℃~70 ℃, other compensation temperature ranges -10 ℃~80 ℃, reference 35 ℃.

(3) After passing high and low temperature, return to the reference temperature.

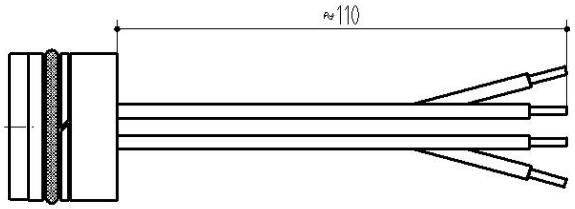
External Dimensions

Tolerance unless otherwise specified: ±0.1mm

Range ≤ 7MPa	Range > 7MPa
	

Electrical Connection

4 wires (4w)



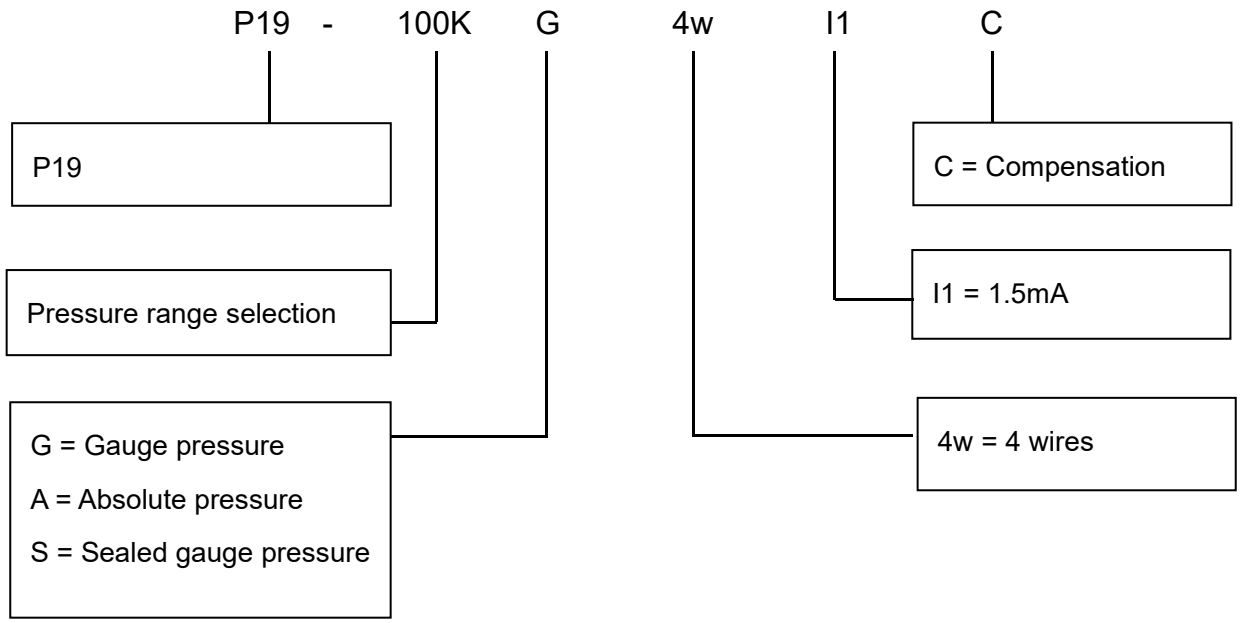
Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

Pressure range selection

Pressure range code	Pressure reference	Pressure range	Overpressure	Burst pressure	O-ring
7k	G	0～7kPa	300%FS	600%FS	Fluorine rubber
14k	G	0～14kPa	300%FS	600%FS	Fluorine rubber
35k	G	0～35kPa	300%FS	600%FS	Fluorine rubber
100k	A, G	0～100kPa	200%FS	500%FS	Fluorine rubber
210k	G	0～210kPa	200%FS	500%FS	Fluorine rubber
700k	G	0～700kPa	200%FS	500%FS	Fluorine rubber
1.4M	G、S	0～1.4MPa	200%FS	500%FS	Fluorine rubber
3.5M	S	0～3.5MPa	200%FS	400%FS	Fluorine rubber
7M	S	0～7MPa	200%FS	400%FS	Fluorine rubber
14M	S	0～14MPa	200%FS	400%FS	Fluorine rubber
21M	S	0～21MPa	150%FS	300%FS	Fluorine rubber
35M	S	0～35MPa	150%FS	300%FS	Fluorine rubber
70M	S	0～70MPa	150%FS	300%FS	Fluorine rubber

Note: G stands for gauge pressure, A, absolute pressure, S, sealed gauge pressure.

How to order



Example: P19-100kG4wI1C

P19 sensor, measuring range 100kPa, gauge pressure, electrical connection 4-wire , 1.5mA excitation, current compensation

Ordering tips

1 Pressure range can be selected higher or lower than actual conditions but should be within ±30%FS.
2 Pressure reference consists of gauge pressure, absolute pressure and sealed gauge pressure.
(1) Gauge pressure refers to a measurement based on the current atmospheric pressure, generally greater than the current atmospheric pressure; Negative pressure is a special case of gauge pressure, referring to the working conditions at the workplace that are lower than the current atmospheric pressure.
(2) Absolute pressure is based on vacuum.
(3) The sealing pressure is the absolute pressure used as the gauge pressure, but the benchmark is the production site air pressure; There is no gauge pressure above 6MPa, only sealing pressure.
3 Confirm the maximum overload of the applied system, which should be less than the overload protection limit of the sensor, otherwise it will affect the product life or even damage the product.
4 The commonly used compensation of the product is 1.5mA constant current compensation. Suggest selecting this option with priority.
5 The material and process for manufacturing negative pressure sensors are not all the same with those of positive pressure sensors. So gauge pressure sensors cannot be used as substitute of negative pressure sensors.
6 For special requirements on performance parameters and functions of the product, please contact us.

Wotian reserves the right to make any change in this publication without notice. The information provided is believed to be accurate and reliable as of this product sheet.

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